

WHAT IS CLAIMED IS:

1. A communication method, based on a communications standard that defines a cell format with a standard header of a standard length M , for communicating cells from a sender via a communications medium to a receiver, the method comprising:

forming an abbreviated header of length $m < M$; and

sending a cell, including the abbreviated header, over the communications medium.

2. The method of claim 1, wherein:

the communications standard is asynchronous transfer mode (ATM); and

$M = 5$ octets.

3. The method of claim 2, wherein:

$m = 2$ octets.

4. The method of claim 1, further comprising:

receiving the cell that was sent over the communications medium; and

unpacking information from the abbreviated header of length m .

5. The method of Claim 4, further comprising:

using the unpacked information from the abbreviated header of length m so as to form a standard header of the standard length M ; and

forming a standard cell including the standard header of the standard length M .

6. The method of Claim 5, further comprising:

sending the standard cell of the standard length M , further downstream from the receiver.

7. The method of Claim 1, wherein the step of forming an abbreviated header of length $m < M$ includes:

a) forming, within the abbreviated header, a virtual channel identifier (VCID) field that has a VCID field length $V < 16$ bits sufficient to specify a number of virtual channels encountered in a given communications scenario.

8. The method of claim 7, wherein:

the given communications scenario involves communicating the cells in a digital subscriber line (DSL) network; and

$V \leq 5$ bits.

9. The method of Claim 7, wherein the communications standard is asynchronous transfer mode (ATM), and the step of forming an abbreviated header of length $m < M$ further includes:

b) forming a PTI (Payload Type Identifier) field as defined in ATM;

c) forming a CLP (Cell Loss Priority) field as defined in ATM;

d) forming a DIB (Data Identification Bit) field that takes on a first value to specify that a cell payload is data, and a second value to specify that the cell payload is management information;

e) forming an MCT (Management Cell Type) field that forms a specification taken from a group including:

- a present cell is a channel setup notification cell or a channel close notification cell;
 - the present cell is an F5 OAM cell;
 - the present cell is an F4 OAM cell, from end-to-end; and
 - the present cell is an F4 OAM cell, in the present link (segment) only; and
- f) forming an ERROR CONTROL field.

10. The method of Claim 9, wherein:
the PTI field has a PTI length of three bits;
the CLP field has a CLP length of one bit;
the DIB field has a DIB length of one bit;
the MCT field has an MCT length of two bits; and
the ERROR CONTROL field has a EC length of four bits.

11. The method of Claim 10, wherein:
the given communications scenario involves communicating the cells in a digital subscriber line (DSL) network; and
 $V \leq 5$ bits.

12. A method of forming an abbreviated header of length $m < M$ for incorporation into a cell to be communicated from a sender via a communications medium to a receiver in accordance with a communications standard that defines a standard header of length M , the method comprising:

collecting information required for fields of the abbreviated header;
inserting the information into the abbreviated header of length m ; and
communicating a cell including the abbreviated header from the sender to the receiver substantially in accordance with the communications standard.

13. The method of Claim 12, wherein the collecting step includes:
reading some of the information from a pre-existing standard header of the standard length M .

14. The method of Claim 12, wherein the inserting step includes:
a) forming, within the abbreviated header, a virtual channel identifier (VCID) field that has a VCID field length $V < 16$ bits sufficient to specify a number of virtual channels encountered in a given communications scenario.

15. The method of claim 14, wherein:
the given communications scenario involves communicating the cells in a digital subscriber line (DSL) network; and
 $V \leq 5$ bits.

16. The method of Claim 14, wherein the communications standard is asynchronous transfer mode (ATM), and the inserting step includes:

- b) forming a PTI (Payload Type Identifier) field as defined in ATM;
- c) forming a CLP (Cell Loss Priority) field as defined in ATM;
- d) forming a DIB (Data Identification Bit) field that takes on a first value to specify that a cell payload is data, and a second value to specify that the cell payload is management information;
- e) forming an MCT (Management Cell Type) field that forms a specification taken from a group including:
 - a present cell is a channel setup notification cell or a channel close notification cell;
 - the present cell is an F5 OAM cell;
 - the present cell is an F4 OAM cell, from end-to-end; and
 - the present cell is an F4 OAM cell, in the present link (segment) only; and
- f) forming an ERROR CONTROL field.

17. The method of Claim 16, wherein:
the PTI field has a PTI length of three bits;
the CLP field has a CLP length of one bit;
the DIB field has a DIB length of one bit;
the MCT field has an MCT length of two bits; and
the ERROR CONTROL field has a EC length of four bits.

18. A communication method, based on a communications standard that defines a cell format with a standard header of a standard length M , involving communicating cells including an abbreviated header of length $m < M$ from a sender via a communications medium to a receiver, the method comprising:

receiving, from the communications medium, a cell including the abbreviated header of length $m < M$; and

unpacking information from the abbreviated header.

19. The method of Claim 18, further comprising:

using the unpacked information from the abbreviated header of length m so as to form a standard header of the standard length M ; and

forming a standard cell including the standard header of the standard length M .

20. The method of Claim 19, further comprising:

sending the standard cell of the standard length M , further downstream from the receiver.

21. A system configured to perform the method of Claim 1.

22. A system configured to perform the method of Claim 3.

23. A system configured to perform the method of Claim 7.

24. A system configured to perform the method of Claim 12.

25. A system configured to perform the method of Claim 14.

26. A system configured to perform the method of Claim 18.

27. A computer program product storing program instructions for execution on a computer system having at least one data processing device, whose instructions when executed by the computer system cause the computer system to perform the method of Claim 1.

28. A computer program product storing program instructions for execution on a computer system having at least one data processing device, whose instructions when executed by the computer system cause the computer system to perform the method of Claim 3.

29. A computer program product storing program instructions for execution on a computer system having at least one data processing device, whose instructions when executed by the computer system cause the computer system to perform the method of Claim 7.

30. A computer program product storing program instructions for execution on a computer system having at least one data processing device, whose instructions when executed by the computer system cause the computer system to perform the method of Claim 12.

31. A computer program product storing program instructions for execution on a computer system having at least one data processing device, whose instructions when executed by the computer system cause the computer system to perform the method of Claim 14.

32. A computer program product storing program instructions for execution on a computer system having at least one data processing device, whose instructions when executed by the computer system cause the computer system to perform the method of Claim 18.